

IN THE CLAIMS

1. (currently amended) A method for removing fluorine gas from a selected environment, comprising the steps of:

(a) contacting the fluorine gas from the environment with a selected quantity of water in an ion-exchange resin, thereby to generate an acidic solution of hydrofluoric acid; and

(b) contacting said acidic solution of hydrofluoric acid with ~~an~~ the ion-exchange resin having an active state operative to exchange selected ions therein for fluoride ions in said acidic solution when in contact therewith,

wherein said ion-exchange resin is capable of chemically shifting between said active state and an exhausted state operative to exchange the fluoride ions in said ion-exchange resin for the selected ions contained in a regenerant solution when in contact therewith, and including the step of regenerating said ion-exchange resin by contacting said ion-exchange resin with the regenerant solution thereby to form a selected regenerant waste product containing the fluoride ions, and

wherein said regenerant solution is selected from the group consisting of ammonium hydroxide solution, waste ammonium hydroxide solution, and any combination thereof.

2. (original) The method according to claim 1 wherein the regenerant solution is waste ammonium hydroxide solution.

3. (currently amended) ~~A~~ The method according to claim 1 wherein the waste ammonium hydroxide solution is generated from one or more processes associated with the fluorine gas from a selected environment.

Claims 4-6 (cancelled)

7. (new) The method according to claim 1 comprising the step of providing a vacuum pump wherein the step of contacting the fluorine gas from the semiconductor process with a selected quantity of water in the ion-exchange resin comprises exhausting the fluorine gas from the vacuum pump into the selected quantity of water.

8. (new) The method according to claim 2 wherein the waste ammonium hydroxide solution is generated from a chemical-mechanical polishing ("CMP") process.